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| 10/721,165 | 11/26/2003 | Ulrich C. Boettiger | M4065.0948/P948 | 5534 |
| 24998 | 7590 | 11/30/2006 | EXAMINER | |
| DICKSTEIN SHAPIRO LLP | | | DINH, JACK | |
| 1825 EYE STREET NW | | | ART UNIT | |
| Washington, DC 20006-5403 | | | PAPER NUMBER | |
| | | | 2873 | |

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/721,165

Applicant(s)

BOETTIGER ET AL.

Examiner

Jack Dinh

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 0906
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☒ Other: DETAILED ACTION

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities. Regarding claim 8, line 6, "that-said" is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, the phrase "the opening is shaped such that said lens material is formed to account for color dependent photon absorption differences" renders the claims indefinite. It is unclear of the geometric configuration of the recessed area being claimed in order to account for color dependent photon absorption differences. No where in the specification clearly described such shape associates with photon absorption.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 6 and 9 are rejected under 35 U.S.C. 102(b) as being unpatentable by Aoki et al. (US Patent 5,479,049).

Regarding claim 1, Aoki (figure 1, up-side-down) is interpreted as disclosing a microlens for use in an imager comprising a substrate **12** having an opening recessed from an upper surface of the substrate, and lens material **11** located within the opening of the substrate, the opening serving as a mold for the lens material (see figure).

Regarding claim 2, Aoki (figure 1) is interpreted as further disclosing that the opening has at least one arcuate portion (see figure).

Regarding claim 6, Aoki is interpreted as further disclosing that the lens material exhibits a refractive index greater than that of the substrate (col. 2, lines 53-57).

Regarding claim 9, Aoki (figure 1) is interpreted as further disclosing that the opening is structured such that a focal point of the micro-lens is associated with a color of light **8a**, **8b**, **8c**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (US Patent 5,479,049), as applied in claim 1, in view of Nishihara (US Patent 5,764,319).

Regarding claim 3, Aoki is interpreted as disclosing all the claimed limitations as described above except that the opening is shaped such that lens material corrects for optical aberrations. Within the same field of endeavor, Nishihara is interpreted as disclosing that the microlens can be formed in aspheric shape so as to correct aberrations. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the microlens in aspheric shape for the purpose of correcting optical aberrations.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (US Patent 5,479,049), as applied in claim 1, in view of Kravitz (US Patent 5,790,730).

Regarding claim 3, Aoki is interpreted as disclosing all the claimed limitations as described above except that the substrate comprises silicon dioxide. Within the same field of endeavor, Kravitz is interpreted as disclosing that silicon dioxide substrate used with microlens is well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the substrate from silicon dioxide for the purpose of selecting a desired refractive index for the substrate.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (US Patent 5,479,049), as applied in claim 1.

Regarding claim 7, Aoki is interpreted as disclosing all the claimed limitations as described above except that the lens material exhibits a refractive index less than the substrate. However Aoki discloses that the lens material exhibits a refractive index greater than that of the substrate (col. 2, lines 53-57). Whether the lens material has a refractive index higher or lower than the substrate will cause the beam to converge or diverge, which is clearly depending on specific application. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the lens material with a lower refractive index than the substrate for application specific purpose.

7. Claims 8, 10 and 11 are rejected under 35 U.S.C. 102(b) as being unpatentable by Aoki et al. (US Patent 5,479,049), in view of Kravitz (US Patent 5,790,730), and further in view of Nishihara (US Patent 5,764,319).

Regarding claim 8, Aoki (figure 1, up-side-down) is interpreted as disclosing a microlens comprising a substrate **12** having an opening recessed from an upper surface of the substrate, and lens material **11** located within the recessed area of the substrate which serves as a mold for the lens material (see figure). Aoki is interpreted as disclosing all the claimed limitations as described above except that the substrate comprises silicon dioxide. Within the same field of endeavor, Kravitz is interpreted as disclosing that silicon dioxide substrate used with microlens is

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well known in the art. Aoki in view of Kravitz discloses all the claimed limitations except that the opening is shaped such the lens material corrects for optical aberrations. Within the same field of endeavor, Nishihara is interpreted as disclosing that the microlens can be formed in aspheric shape so as to correct aberrations. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the substrate from silicon dioxide for the purpose of selecting a desired refractive index for the substrate, and to form the microlens in aspheric shape for the purpose of correcting optical aberrations.

Regarding claim 10, Aoki is interpreted as further disclosing that the lens material exhibits a refractive index greater than that of the substrate (col. 2, lines 53-57).

Regarding claim 11, Aoki in view of Kravitz and further in view of Nishihara is interpreted as disclosing all the claimed limitations as described above except that the lens material exhibits a refractive index less than the substrate. However Aoki discloses that the lens material exhibits a refractive index greater than that of the substrate (col. 2, lines 53-57).

Whether the lens material has a refractive index higher or lower than the substrate will cause the beam to converge or diverge, which is clearly depending on specific application. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the lens material with a lower refractive index than the substrate for application specific purpose.

Response to Arguments

8. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Dinh whose telephone number is 571-272-2327. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky L. Mack, can be reached at 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jack Dinh
11/22/06


RICKY MACK
SUPERVISORY PATENT EXAMINER